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Electric Division

January 26, 2001

Jim Loock, Chief Electric Engineer Public Service Commission 610 N. Whitney Way P.O. Box 7854 Madison, WI 53707-7854

RE:

In the Matter of Filing Plans for Appropriate Inspection and

Maintenance, PSC Rule 113.0607.

Dear Mr. Loock:

Enclosed for filing are 3 copies of Mazomanie's Preventative Maintenance Plan detailing inspection maintenance schedules, condition rating criteria, corrective action schedules, record keeping procedures and report filing schedules as documented in this rule.

Very truly yours,

Robert A Harper

Electrical Superintendent

Robert a Varger

Enclosures

PREVENTATIVE MAINTENANCE PLAN

MAZOMANIE UTILITY

FILING DEADLINE FEBRUARY 1, 2001

January 26, 2001

Robert A Harper

Mazomanie Electric

Mazomanie, WI 53560

[608] 795-2100 or 767-2561

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This plan was prepared by the MEUW work group for PSC Rule 113.0607 for use by the 82 municipal electric utilities in Wisconsin and endorsed by PSC staff as meeting the requirements of Rule PSC 113.0607.

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I. Preventative Maintenance Plan

The PSC 113.0607 rule reads;

Appropriate inspection and maintenance: system reliability.

- (1) PREVENTATIVE MAINTENANCE PLAN. Each utility or other person subject to this chapter, including persons who own electric generating facilities in this state who provide service to utilities with contracts of five years or more, shall develop and have in place its own preventative maintenance plan. This section is applicable to electric generating facilities as set forth at s. 194.491(5)(a)(1), Stats. Each plan shall include, among other things, appropriate inspection, maintenance and replacement cycles where applicable for overhead and underground distribution plant, transmission, generation¹, and substation facilities.
- (2) CONTENTS OF THE PLAN. (a) Performance standard. The Preventative Maintenance Plan shall be designed to ensure high quality, safe, and reliable service, considering: cost, geography, weather, applicable codes, national electric industry practices, sound engineering judgment and experience.
- 1 PSC staff interpretation is that generation applies to individual generators equal to or greater than 50 MW.

II. Inspection Schedule and Methods:

The purpose of this plan is to maintain or improve the electrical system reliability with the objective of increased municipal loyalty and satisfaction from our constituents. The goals are to meet and exceed the schedules established in this plan.

Exception reporting (inspected equipment not in good condition) will be the method of documentation on all inspection forms.

The scope of this plan is traditional and uses proven maintenance techniques. Unique operating and maintenance philosophies have not been considered. Also, manufacturer defects will be dealt with as they are communicated to this utility.

EVERY

SCHEDULE:	MONTHLY	ANNUAL	5 YEARS
Transmission (≥69Kv and above)		X	X
Substations	X	X	
Distribution (OH & UG)			X

The inspection of Distribution facilities will be by individual substation circuits on a 5-year cycle such that the entire system will be inspected every 5 years. Inspector instructions for inspecting all facilities and forms are included with the plan.

METHODS: Five criteria groups will be used to complete the inspection of all facilities.

- 1. <u>IR</u> infrared thermography used to find poor electrical connections and/or oil flow problems in equipment.
- 2. <u>RFI</u> Radio Frequency Interference, a byproduct of loose hardware and connections, is checked using an AM radio receiver.
- 3. <u>SI</u> structural integrity of all supporting hardware including poles, crossarms, insulators, structures, bases, foundations, buildings, etc.
- 4. <u>Clearance</u> refers to proper spacing of conductors from objects, trees and other utility cables.
- 5. <u>EC</u> equipment condition on non-structural components such as circuit breakers, transformers, regulators, reclosers, relays, batteries, capacitors, etc.

III. Condition Rating Criteria:

This criterion, as listed below, establishes the condition of a facility and also determines the repair schedule to correct deficiencies.

- 0) Good condition
- 1) Good condition but aging
- 2) Non-critical maintenance required normally repair within 12 months
- 3) Priority maintenance required normally repair within 90 days
- 4) Urgent maintenance required report immediately to the utility and repair normally within 1 week

IV. Corrective Action Schedule

The rating criteria as listed above determine the corrective action schedule.

V. Record Keeping

All inspection forms and records will be retained for a minimum of 10 years. The inspection form contains all of the required critical information i.e. inspection dates, condition rating, schedule for repair and date of repair completion.

VI. Reporting Requirements

A report and summary of this plan's progress will be submitted every two years with the first report due to the Commission by February 1, 2003. The report will consist of a letter documenting the percent of inspections achieved compared to the schedule and a description of maintenance achieved within the scheduled time allowance.

4

VII DISTRIBUTION - OVERHEAD INSPECTION GUIDE

STRUCTURE

- Pole Condition
- Pole Leaning
- Crossarm Condition
- Insulators, Deadend, Pin
- Excess Fill or Soil Removal
- Pole Steps
- Grounds Intact
- Ground Molding
- Down Guys
- Guy Markers
- Guy Bonding/Insulator
- Signage Location Number, Warning Sign
- Customer Equipment
- Conductor
- Tie Wires
- U Guard/Conduit Condition

EQUIPMENT

- Transformers
 - ✓ Oil Leaks
 - ✓ Bushing Condition
 - ✓ Grounding/Bonding
- Capacitors
 - ✓ Fuses Blown
 - ✓ Bushing Condition
 - ✓ Oil Leaks
 - ✓ Tank Bulged
 - ✓ Switches, Oil, Vacuum
 - ✓ Control Conduit/Wiring
 - ✓ Grounding/Bonding
- Switches GOAB, Inline, Disconnect
 - ✓ Insulator Condition
 - ✓ Operating Handle/Locks
 - ✓ Linkage
 - ✓ Grounding/Bonding
 - ✓ Switch Number
- Cutouts
 - ✓ Insulator Condition
 - ✓ Fuse Size Tag

VII DISTRIBUTION - OVERHEAD INSPECTION GUIDE (con't)

EQUIPMENT (CON'T)

- Arrestor
 - ✓ Insulator Condition
 - ✓ Connections
 - ✓ Ground Lead Disconnection
- Cable Terminators
 - ✓ Insulator Condition
 - ✓ Grounding/Bonding

CLEARANCES

- Ground Line
- Buildings, Bridges, Swimming Pool, Etc.
- Communications Facilities
- Fuel Tanks
- Other Electric Utilities
- Transmission Lines
- Over Streets, Roads, Alleys, Highways
- Tree Trimming
 - ✓ Clearance From Line
 - ✓ Vines on Poles
 - ✓ Danger Trees

INFRARED SCAN

- Main Three-Phase Feeders
- Priority Overhead Transformer Banks
 - ✓ Bushing Connectors Primary
 - ✓ Bushing Connectors Secondary
 - ✓ General Tank Heating
- Current & Voltage Transformers if Applicable

RFI CHECK

OH system with AM radio as each circuit is inspected

			Corrected By																	
		pə	Date Item Correct																	
COMMENTS		Rating Criteria	1) Good Condition 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenace Required																	
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OVERHEAD DISTRIBUTION INSPECTION	MAP AREA			LOCATION														~		

VIII DISTRIBUTION - UNDERGROUND INSPECTION GUIDE

STRUCTURAL (Exterior & Interior) Transformer, Primary Pedestal, Secondary Pedestal, Switchgear.

- Enclosure Condition
- Level/Leaning
- Security
- Grade/Accessibility (Shrubs, Customer Facilities, Fill/Excavation)
- Numbering
- Voids/Gaps
- Signage Location Number, Warning Sign
- Pad/Vault Condition

EQUIPMENT

- Transformers
 - ✓ Oil Leaks
 - ✓ Bushing Condition
 - ✓ Grounding/Bonding
 - ✓ Elbows
 - ✓ Arrestors
 - ✓ Feed-Through
 - ✓ Cable Condition
 - ✓ Secondary Connections
- Primary Pedestals
 - ✓ Elbows
 - ✓ Junction Condition
 - ✓ Grounding/Bonding
- Secondary Pedestals
 - ✓ Secondary Connections
- Switches URD Switchgear
 - ✓ Insulator Condition
 - ✓ Operating Handle Security
 - ✓ Linkage
 - ✓ Grounding/Bonding
 - ✓ Switch Number/Fuse Size & Number

INFRARED SCAN and RFI CHECK

- Main Three-Phase Feeders (Risers & Switchgear)
- Priority URD Transformer Banks
 - ✓ Bushing Connectors Primary
 - ✓ Bushing Connectors Secondary
 - ✓ General Tank Heating

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	Corrected By																
	Date Item Corrected																
COMMENTS	Rating Criteria 0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenace Required																
IR / RFI Scan	chority URD Transformers, Bushings and sank heating																
IR/R	Main Three Phase Feeders, Risers & Switchgear																
	witches, Signage, Insulators, Security, inkage, Ground, Bonds																
AENT	iecondary Pedestals, Connections	3										_					
EQUIPMENT	Pedestals, Elbows, Pedestals, Elbows, Sounding, Bonds, Junction cond.																
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	evel / Leaning	1															
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MAP AREA	EQUIPMENT	LOCATION															

Sub

Inspected by_

UNDERGROUND DISTRIBUTION INSPECTION FORM Date_

IX SUBSTATION - MONTHLY INSPECTION GUIDE

TRANSFORMER MAIN TANK:

- Oil in bushings
- Bushing and arrestor porcelain
 - Cracks or chips
 - Rust or dirt
- Oil leaks

 - ✓ Main tank✓ Sample valves
 - ✓ Radiators
- Radiator bank
 - ✓ warm on top, cool at bottom
- Tank pressure
- Tank oil level
- Temperature gauge
- Cooling fans

TRANSFORMER LTC or VOLTAGE REGULATORS:

- Tank oil level
- Drag hand positions
- Cabinet light
- Operation count
- Tank pressure
- Cabinet heater
- Cabinet contamination

TRANSMISSION CIRCUIT BREAKERS:

- OPEN/CLOSED indicator
- CHARGED/DISCHARGED indicator
- Cabinet light
- Cabinet heater
- Operations counter
- **Bushings and supports**
 - ✓ Cracks or chips
 - ✓ Rust or dirt
- Line and load side disconnect switches
 - ✓ Properly labeled
 - ✓ Aligned properly
- Handles grounded
- Emergency trip button
- Air / Oil compressors
- Air / Oil pressure gauge
- Spring operated mechanism
- Oil level gauge
- Tank oil leaks
- Reset switch
- Cabinet contamination
- Vents clean
- Gas pressures for GCBs

IX SUBSTATION - MONTHLY INSPECTION GUIDE (con't)

FEEDER CIRCUIT BREAKERS / RECLOSERS

- OPEN/CLOSED indicator
- CHARGED/DISCHARGED indicator
- Cabinet light
- Cabinet heater
- Operations counter
- Bushings and supports
 - ✓ Cracks or chips
 - ✓ Rust or dirt
- Line and load side disconnect switches
 - ✓ Labeled properly
 - ✓ Aligned properly
 - ✓ Handles grounded
- Emergency trip button
- Oil level gauge
- Tank oil leaks
- Reset switch
- Cabinet contamination
- Vents clean
- Gas pressures for GCBs

HIGH AND LOW VOLTAGE BUSS WORK:

- Bushing, insulator, arrestor, and support insulators
 - ✓ Chips or cracks
 - ✓ Rust or dirt
- Bird nests
- Potential transformers bushings
 - ✓ Cracks or chips
 - ✓ Rust or dirt
- Cable terminators
 - ✓ Leaking fluid
 - ✓ Cracks or chips

MANUAL SWITCHES:

- Properly labeled
- Ground connections
- Positioning and alignment
- Bushing and support insulators
 - ✓ Cracks or chips
 - ✓ Rust or dirt

MOTOR OPERATED SWITCHES:

- OPEN/CLOSED indicator
- Properly labeled
- Cabinet heater
- Operations counter

IX SUBSTATION - MONTHLY INSPECTION GUIDE (con't)

CONTROL HOUSE/MISCELLANEOUS:

- Clock displays proper time
- AC/DC load center breakers
- Room temperature
- Rodents
- Panels labeled properly
- Panel lights
- Annunciator panel
- Panel meters
- SCADA system RTU
- SCADA alarms
- Position indicators agree
- Relay target information
- Emergency contact directory & dial tone for phone
- Safety Equipment

BATTERY:

- Liquid levels
- Proper float voltage on charger and battery
- Specific gravity in pilot cell
- Personal Protective Equipment
- Connection corrosion
- Leaking cells
- Dated solution in eyewash station

YARD AND FENCE:

- Fire extinguisher charged
- Fence ground connections
- Fence secured
- Security and emergency lights
- Site base and grade
- Standing water
- Warning signs

MONTHLY	SUBSTATIC)N INSF	ECTIO	V FORM	
INSPECTED BY:					
DATE:					
SUBSTATION:					
TRANSFORMER MAIN TANK	RATING: 0	1 2	3 4	(Circle One)	
inspected X	С	OMMENTS		DATE CORRECTED	CORRECTED BY
Oil in Bushings					
Bushing and Arrestor					
Oil Leaks					
Main Tank					
Sample Valves					
Radiators					
Radiator Bank					
Tank Pressure					
Tank Oil Level					
Temperature Gauge					
Cooling Fans					
TRANSFORMER LTC or VOLTAGE REGULATORS	RATING: (0 1 2	3 4	(Circle One)	
Tank Oil Level					
Drag Hand Positions					
Cabinet Light					
Operation Count					
Tank Pressure					
Cabinet Heater					
Cabinet Contamination		***************************************			
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<u> </u>				
MONTHLY SUE	BS	STATION INSPECTION	FORM	
INSPECTED BY:				
DATE:				
SUBSTATION:				
HIGH VOLTAGE CIRCUIT BREAKER / CIRCUIT SWITCHER		RATING: 0 1 2 3 4	(Circle One)	
inspected X		COMMENTS	DATE CORRECTED	CORRECTED BY
OPEN/CLOSED Indicator				
CHARGED/DISCHARGED Indicator				
Cabinet Light				
Cabinet Heater				
Operations Counter	<u> </u>			
Bushings and Supports				
Line and Load Side Disconnect Switches				
Handles Grounded				
Emergency Trip Button				
Air Compressors - Air / Oil				
Air Pressure Gauge - Air / Oil				
Spring Operated Mechanism				
Oil Level Gauge				
Tank Oil Leaks				
Reset Switch				
Cabinet Contamination				
Vents Clean				
Gas Pressures for GCBs				

MONTHLY S	U	BSTATION INSPECTIO	N FORM
INSPECTED BY:			
DATE:			
SUBSTATION:			20.00.00
FEEDER CIRCUIT BREAKER / RECLOSER		RATING: 0 1 2 3 4	(Circle One)
inspected	X	COMMENTS	DATE CORRECTED BY
OPEN/CLOSED Indicator			•
CHARGED/DISCHARGED Indicator			
Cabinet Light			
Cabinet Heater			
Operations Counter			
Bushings and Supports			
Line and Load Side Disconnect Switches			
Emergency Trip Button			
Oil Level Gauge			
Tank Oil Leaks			
Reset Switch			
Cabinet Contamination			
Vents Clean			
Gas Pressures for GCBs			

MONTHLY	SUI	BSTATI	ON	IN	ISP	EC	TIO	N FORM	
INSPECTED BY:									
DATE:									
SUBSTATION:									
CONTROL HOUSE/MISCELLANEOUS		RATING:	0	1	2	3	4	(Circle One)	
inspected	x		CON	MMEN	1TS			DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time									
AC/DC Load Center Breakers									
Room Temperature									
Rodents									
Panels Labeled Properly									
Panel Lights									
Annunciator Panel									
Panel Meters									
SCADA System RTU									
SCADA Alarms									
Position Indicators Agree									
Relay Target Information									
Emergency Contact Directory &					-		- 1'		
Dialtone for Phone			<u></u>						<u> </u>
Safety Equipment									
BATTERY	, , , , , , , , , , , , , , , , , , , 	RATING:	0	1	2	3	4	(Circle One)	
Liquid Levels			·	,	·				
Proper Float Voltage on Charger & Battery									
Specific Gravity in Pilot Cell									
Personal Protective Equipment									
Connection Corrosion									
Leaking Cells									
Dated Solution in Eyewash Station									
					-				
YARD & FENCE		RATING:	0	1	2	3	4	(Circle One)	
Fire Extinguisher Charged									
Fence Ground Connections									
Fence Secured									
Security and Emergency Lights		· · · · · · · · · · · · · · · · · · ·							
Site Base and Grade									
Standing Water									
Waming Signs									

X Substation - Annual Inspection Guide

- Check equipment for level
- Check condition of concrete pads
- Perform oil and DGA analysis
- Battery
 - ✓ Intercell strap resistance
 - ✓ Individual cell voltages
 - ✓ Cell specific gravity
- Nameplate legible
- Equipment paint condition
- Proper equipment ID labels
- IR / RFI scans and checks

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ANNUAL SUBSTATION INSPECTION FORM

	Corrected By																
MAINTE																	
COMMENTS	Rating Criteria 0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenace Required																
	IR / RFI scans and checks														100 to 10		
₹	Proper identification labels														100000000000000000000000000000000000000		
SRITER	Equipment paint condition														A SWICE	7.1	
NOIL	Nameplate legible														Participation of the Participa		
TION INSPEC	resistance, Individual cell voltages,					3.00											Assessment waterways
JBSTA	Perform oil and DGA analysis									6.00						a series	
ਲ	Check condition of concrete pads																
	Check equipment for level														200900000		
	EQUIPMENT LISTING	ransformer	TC or regulators	igh Voltage Breaker		eder CBs / Reclosers					witches					ontrol house battery	Transmission line RFI
	SUBSTATION INSPECTION CRITERIA COMMENTS MAINTENANCE COMMENTS COMPLETED	SUBSTATION INSPECTION CRITERIA Check equipment for level Check condition of concrete pads Check condition of concrete pads Perform oil and DGA analysis Battery checks - Intercell strap Resistance, Individual cell voltages, Cell specific gravity Aameplate legible Cell specific gravity Cell specific gravity Cell specific gravity Droper identification labels Cell specific gravity Aameplate legible Cell specific gravity Aameplate legible Cell specific gravity Aameplate legible Cell specific gravity Aameplate Required Proper identification labels Cell specific gravity Aameplate legible Cell specific gravity Aameplate legible Cell specific gravity Aameplate Required Proper identification but aging	SUBSTATION INSPECTION CRITERA Check equipment for level Check condition of concrete pads Battery checks - Intercell strap Perform oil and DGA analysis Battery checks - Intercell strap Cell specific gravity Cond Condition Cond Conditio	SUBSTATION INSPECTION CRITERIA SUBSTATION INSPECTION CRITERIA Check condition of concrete pads Check equipment for level Battery checks - Infercell strap Check equipment paint condition Is a sense sense sequired Asmeplate legible Check equipment paint condition Is a sense sequired Asmeplate legible Check equipment paint maintenance Required Is a sense sequired Is a sequired	SUBSTATION INSPECTION CRITERA Check equipment for level Check condition of concrete pads Check condition of snalysis Check condition labels Battery checks - Infercell strap Cell specific gravity Check condition labels Cell specific gravity Check condition but aging Cell specific gravity Check Required Check condition but aging Cell specific gravity Cell specific gravity Check condition but aging Cell specific gravity Cell specific gravity	SUBSTATION INSPECTION CRITERIA Check equipment for level Check condition of concrete pads Check condition babels Battery checks - Intercell strap Perform oil and DGA analysis Check condition labels Check condition labels Check condition labels Rating Criteria Check condition but aging Check condition but aging Check condition but aging Rating Criteria Signal Analysis Check condition but aging Check conditi	STING Check equipment for level Check condition of concrete pads Battery checks - Intercell strap Check condition of concrete pads Check condition of condition Rameplate legible Call specific gravity Call specifi	SUBSTATION INSPECTION CRITERIA Check equipment for level Check condition of concrete pads Battery checks - Intercell strap Cell specific gravity Cell specific gravity Cell specific gravity Namenal Condition Comment Com	SUBSTATION INSPECTION CRITERIA Check equipment for level Check condition of concrete pads Perform oil and DCA analysis Check condition of concrete pads Battery checks - Infercell strap Cell specific gravity Cell specific gravity Cell specific gravity Animenal cell voltages Condition but aging Criteria Namenplate legible Equipment paint condition but aging Proper identification labels Condition but aging IR / RFI scans 2) Non-critical Maintenance Required IR / RFI scans 3) Priority Maintenance Required 4) Urgent Maintenance Required Comments Comm	SUBSTATION INSPECTION CRITERIA Check condition of concrete pads Battery checks - Infercell strap resistance, Individual cell voltages, Cell specific gravity Nameplate legible Equipment paint condition Proper identification labels Equipment paint condition Proper identification labels IR / RFI scans and checks Sood Condition but aging IR / RFI scans and checks IR / RFI scans and chec	SUBSTATION INSPECTION CRITERA SUBSTATION INSPECTION CRITERA SUIPMENT LISTING Check condition of concrete pads Check condition of concrete pads Check condition of concrete pads Check condition of sand DGA analysis Check condition of sand checks Check equipment paint condition Battery checks - Intercell strap Check equipment paint condition Check equipment paint condition Battery checks - Intercell strap Check equipment paint condition Check equipment paint condition Incluipment paint condition Check equipment paint condition Incluipment maintenance Required Incluipment Maintenance Required	SUBSTATION INSPECTION CRITERA Check equipment for level Check condition of concrete pads Check condition of concrete pads Check condition of concrete pads Battery checks - Intercell strep Rating Criteria Nameplate legible Cell specific gravity Vameplate legible Equipment paint condition Proper identification labels Equipment paint condition R / RFI scans and checks B / Order Condition Proper identification labels R / RFI scans Required Proper identification but aging R / RFI scans Required OMMENTS COMMENTS	SUBSTATION INSPECTION CRITERIA DUIPMENT LISTING Check equipment for level battery condition of concrete pads Check equipment paint condition bit aging criterial strates condition of checks and of 10 Good Condition bit aging testistance, individual cell voltages. 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LISTING Check equipment for level Check equipment for level Check equipment for level Check condition of concrete pads Check equipment for level Che

XI TRANSMISSION - ANNUAL INSPECTION GUIDE

STRUCTURE

- Pole Condition
- Pole Leaning
- Crossarm Condition
- Insulators, Deadend, Pin
- Excess Fill or Soil Removal
- Pole Steps
- Grounds Intact
- Ground Molding
- Down Guys
- Guy Markers
- Guy Bonding/Insulator
- Signage Location Number, Warning Sign
- Customer Equipment
- Conductor
- Tie Wires

EQUIPMENT

- Switches GOAB, Disconnect
 - ✓ Insulator Condition
 - ✓ Operating Handle/Locks
 - ✓ Linkage
 - ✓ Grounding/Bonding
 - ✓ Switch Number
- Arrestor
 - ✓ Insulator Condition
 - ✓ Connections

CLEARANCES

- Ground Line
- Buildings, Bridges, Etc.
- Communications Facilities
- Fuel Tanks
- Other Electric Utilities
- Over Streets, Roads, Alleys, Highways
- Tree Trimming
 - ✓ Clearance From Line
 - ✓ Vines on Poles
 - ✓ Danger Trees

XI TRANSMISSION - ANNUAL INSPECTION GUIDE (con't)

RFI CHECK

- Splices
- Connectors
- Dead Ends
- Switches
- Structures

XII TRANSMISSION - 5 YEAR INSPECTION GUIDE

IR SCAN

- Splices
- Connectors
- Dead Ends
- Switches

ANNUAL TRANSMISSION INSPECTION FORM

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Sub

Inspected by_

Date

	Corrected														
	Date Item Corrected														
COMMENTS	Rating Criteria 0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenace Required														
	Communication Clearance														
S E	Streets, Roads, Alleys													 	
CLEARANCE	Building Clearances													 	
SLE/	Ground Line Clearances														
	Tree Trimming														
EQUIPMENT	Arresters														
Eauir	Switches														
	RFI Check														
	Conductor and Ties												:		
	Customer Equipment														
	Signs, Loc#, Warning		-												
씾	Guy Bond, Insulator														
STRUCTURE	Down Guys and Markers				-										
UC	Grounds Intact, Molding														
TR	Pole Steps														
	Soil Conditions														
	nia (30 ,enotaluan)		-		T		-					 			
	Crossarm Condition			-		T			T						П
	Pole Condition/Leaning														
MAP AREA	LOCATION														